Fire Department • Fire and Environmental Protection Division • 1000 Villa Street • Mountain View, CA 94041-1295
650-903-6378 • FAX 650-903-6122

Plan Check Requirements for:

DRY CLEANING USING FLAMMABLE OR COMBUSTIBLE LIQUIDS

(Update—1/05)

The Fire and Environmental Protection Division of the Mountain View Fire Department (650-903-6378) will review your submitted plans using this plan check guideline.

In the spaces provided, enter the page number in your submitted plans where the item is called out and highlight the item in your plans. Include brochures or manufacturer's cut sheets with the plans when asked for.

If all the required information asked for is included in your plans or attachments, they can be reviewed and approved by the Fire and Environmental Protection Division as quickly as five working days.

****

Facility Name: _____ Address: _____

Architect Name: _____ Phone: _____ PC #: _____ Date:_____

Plan Checking

❑ 1. Three sets of plans (two wet sealed by architect, engineer or contractor of record) shall be submitted to the Building Division for routing.

❑ 2. An Environmental Compliance Plan (ECP) must submitted or updated for this installation. Include the sizes of all tanks and containers, including the dry-cleaning unit, stills, separators, etc.

General Requirements

❑ 3. A 2A-10:BC fire extinguisher shall be provided at each entrance to rooms where flammable/combustible liquids are stored/used (CFC 3601.6). *Show the locations of the fire extinguishers on the plans.* Plan page number: _____.

❑ 4. NO SMOKING signs shall be posted in rooms containing flammable or combustible liquids. (CFC 3601.7). *Show locations of signage on the plans.* Plan page number: _____.

❑ 5. Equipment used for dry cleaning shall be suitable for the type of solvent utilized and shall be listed by a nationally recognized organization. (CFC 3602.2.1). *Attach manufacturer's cut sheets of the dry-cleaning equipment and the UL or other listing.*

6. **Classification of Dry Cleaning Plant**

Dry-cleaning plants shall be classified according to the character of the flammable or combustible liquids used or stored. Indicate below the proper classification of the proposed dry-cleaning plant:

❑ **Class II Plant or System:** Class II combustible liquids in quantities that exceed the exempt amounts set forth in Articles 79 and 80 are used as solvents for dry cleaning.

❑ **Class III-A Plant or System:** Class II I-A combustible liquids in quantities that exceed the exempt amounts set forth in Articles 79 and 80 are used as solvents for dry cleaning.

❑ **Class III-B Plant or System:** Class III-B combustible liquids in quantities that exceed the exempt amounts set forth in Articles 79 and 80 are used as solvents for dry cleaning.

❑ **Class IV Plant or System:** Class II, III-A or III-B combustible liquids not exceeding the exempt amounts set forth in Articles 79 and 80 are used as solvents for dry cleaning.

❑ 7. The transfer and circulation of solvents shall be through closed systems. (CFC 3602.2.2.1) . *Show the circulation piping on the plans*. Plan page number: _____.

❑ 8. If positive displacement pumps are used, they shall be fitted with relief valves or bypasses to prevent overpressure. (CFC 3602.2.2.2). *Show these relief valves on the plans*. Plan page number: _____.

❑ 9. Flow and level sight glasses shall be protected against physical damage. (CFC 3602.2.2.3). *Show the protection on the plans.* Plan page number: _____.

❑ 10. Dry-cleaning systems shall be provided with an automatically-activated exhaust system to maintain a minimum of 100 fpm air velocity through the loading door when the door is opened. If an exhaust system is not used, and exhaust hood immediately outside of and above the loading doors is also acceptable. (CFC 3602.2.3). *Show the exhaust system or exhaust hood on the plans. Show the electrical schematics for the interlock between the opening of the door and the activation of the exhaust*. Plan page number: _____.

❑ 11. Combustion air for fuel-burning equipment (hot water heaters, etc.) shall be taken from exterior openings that are located a minimum of 5' from exhaust openings for dry-cleaning equipment. (CFC 3602.2.4). *Show the location of the air intake on the plans*. Plan page number: _____.

FOR CLASS II, III-A, and III-B DRY CLEANING PLANTS, CONTINUE....

Heating of Liquids

❑ 12. The temperatures of Class II and Class III-A liquids shall not exceed 90 F and the temperature of Class III-B liquids shall not be in excess of 30 F below their flash point. (CFC 3603.3). *Describe how temperatures will be monitored and controlled to keep from exceeding these limits.* Plan page number: _____.

❑ 13. When liquid coolers are used or required, temperatures shall be monitored by visual as well as audible alarming devices installed to warn operators that temperatures are approaching the specified limitation. (CFC 3603.3). *Attach manufacturer's cut sheets on the temperature sensor and alarm device*. Also indicate on the plans the location of the alarm. Plan page number: ___

Occupancy Requirements

❑ 14. Buildings containing dry-cleaning plants shall be protected throughout by an automatic fire-sprinkler system in accordance with the Building Code. (CFC 6303.4.2). *Provide sprinkler plans*. Plan page number: _____.

❑ 15. Dry cleaning rooms and solvent storage rooms shall be located on the first story only. (CFC 3603.4.3). *Indicate this on the plans*. Plan page number: _____.

❑ 16. *Indicate below the appropriate occupancy separation between the dry cleaning plant and other businesses*. (One of these options must be checked). (CFC 6303.4.4):

❑ Class II dry cleaning plants shall be separated from other businesses by 2-hour fire resistive occupancy
separation when the total quantity of Class II liquid in the building does not exceed 550 gallons and the capacity of individual containers or tanks with the building does not exceed 275 gallons;

OR

❑ Class III-A dry cleaning plants shall be separated from other businesses by 2-hour fire resistive occupancy separation when the total quantity of Class III-A liquid in the building does not exceed 1,320 gallons and the capacity of individual containers or tanks with the building does not exceed 330 gallons;

OR

❑ The building containing Class II or III-A dry cleaning plants shall be separated from other businesses by not less than 4-hour fire-resistive occupancy separation.

Show the occupancy separation on the plans. Plan page number: _____

❑ 17. Dry cleaning rooms containing Class II or Class III-A solvents shall be separated from other uses (solvent storage, offices, laundering, etc.) by not less than a 2-hour fire resistive occupancy separation. Solvent storage tanks need not be separated when the tank capacity < 1,500 gallons, there are no more than 2 tanks, and the aggregate capacity of all tanks and containers within the rooms does not exceed 7,500 gallons. (CFC 3603.4.5.1). *List the capacity of individual storage tanks as well as the aggregate storage capacity of the room on the plans. Show the 2-hour separation on the plans.* Plan page number: _____

❑ 18. The maximum capacity of any container or tank within a dry cleaning room containing Class III-B liquids
shall not exceed 2,500 gallons and the capacity of all containers or tanks within the room shall not exceed 7,500 gallons. (CFC 3603.4.5.1). *List the capacity of individual storage tanks as well as the aggregate storage capacity of the room on the plans*. Plan page number: _____.

❑ 19. Rooms or areas in which articles are hung up to dry shall be separated from other uses by not less than a 2-hour fire-resistive occupancy separation. This separation is not required if approved drying or deodorizing cabinets are used. (CFC 3603.4.5.3). *Indicate the occupancy separation or provide manufacturer's cut sheets on the drying/deodorizing cabinets*. Plan page number: _____.

❑ 20. Fuel-burning equipment which generates an open flame (water heaters, etc.) shall be separated from rooms in which solvents are used or stored by not less than a 4-hour fire-resistive occupancy separation. Openings to such rooms shall be at least 10 feet from openings into rooms containing solvents. (CFC 3603.4.5.4.). *Indicate the occupancy separation and show the distance between room openings*. Plan page number: _____.

Ventilation

❑ 21. A mechanical ventilation system designed to exhaust 1 cfm for each square foot of floor area shall be

installed in dry-cleaning rooms and in drying rooms. (CFC 3603.5). *Attach manufacturer's cut sheets on the ventilation system indicating that it will meet this requirement.*

❑ 22. The ventilation system shall operate automatically when the dry-cleaning equipment is in operation and shall have manual controls at an approved location. (CFC 3603.5). *Provide electrical schematics showing how the ventilation system is tied into the operation of the equipment*. Plan page number: _____.

Fuel-burning Equipment

❑ 23. Circulating air systems which return air from dry-cleaning rooms or solvent rooms to fuel-burning or other heated equipment shall not be used. (CFC 3603.6). *Show the air circulation path (incoming and outgoing air) for all rooms*. Plan page number: _____.

Solvent Containers, Tanks and Transferring Equipment

❑ 24. Transferring of solvents from storage tanks through processes shall be by closed-circuit piping. Positive displacement pumps shall have a bypass and relief valve. (CFC 3603.8.2). *Indicate the piping and any positive displacement pumps (with bypass and relief valve) on the plans*. Plan page number: _____.

❑ 25. Fill openings to storage tanks shall be located outside of the building. (CFC 3603.8.2). *Show the fill location on the plans*. Plan page number: _____.

❑ 26. Fill pipe inlets shall be permanently identified with the appropriate liquid classification. (CFC 3603.8.2). *Indicate the wording on the fill pipe label on the plans.* Plan page number: _____,

❑ 27. Emergency relief venting for aboveground tanks and containers shall be provided. (CFC 3603.8.3). *Attach manufacturer's cut sheets on the emergency relief vent and the pressure at which it discharges.*

❑ 28. A gauging device shall be installed on inside storage or treatment tanks. Gauging devices shall be of a design that will not allow vapors to escape within the building or liquids to escape in case a gage is broken. (CFC 3603.8.4). *Attach manufacturer's cut sheets of the gauging device.*

❑ 29. Pressure-relief devices shall be installed on treatment tanks that are subject to pressures greater than atmospheric which will prevent the pressures in the tank from exceeding 10% above the working pressure. Relief devices shall be connected to tanks by piping not less then 3/4" diameter without a shutoff valve in the piping. (CFC 3603.8.6). *Attach manufacturer's cut sheets on the pressure-relief device and the pressure at which it discharges. Indicate how the pressure-relief device will be attached to the tank on the plans.* Plan page number: _____.

❑ 30. Pressure-type filters shall be equipped with a pressure gage and shall not be operated at pressures exceeding those for which they were designed. Filters shall be provided with an air-bleeding valve and line connected to discharge into a washer or into the storage tank vent line. Such air-bleeding lines shall not discharge into the room. (CFC 3603.8.7). *Show this equipment on the plans*. Plan page number: _____.

❑ 31. Pressure relief devices shall be installed on pressure filters to prevent the pressure in the filter from rising more than 10% above its working pressure. Relief devices shall be connected to a dry-cleaning unit by piping not less than 3/4" diameter. (CFC 3603.8.7). *Attach manufacturer's cut sheets on the pressure-relief device and the pressure at which it discharges. Indicate how the pressure-relief device will be attached to the tank on the plans.* Plan page number: _____

❑ 32. Sight glasses shall not be of the type readily damaged by heat and shall be protected against physical damage. (CFC 3603.8.8). *Indicate the materials of construction and protection of the sight glass.* Plan page number: _____.

Dry-cleaning Units

❑ 33. Dry cleaning units shall be well secured to the building or foundation. (CFC 3603.9.1). *Show securement on the plans*. Plan page number: _____.

❑ 34. Dry cleaning units shall be provided with interlocks to prevent cylinder rotation under power when the doors are open. (CFC 3603.9.1). *Show electrical schematics of the interlock.* Plan page number: _____.

❑ 35. Dry cleaning units shall have a manually-operated stop switch installed on or at each unit. (CFC 3603.9.1). *Indicate the location of the stop switch on the plans.* Plan page number: _____.

❑ 36. Dry-cleaning units shall be provided with an overflow pipe one size larger than the size of solvent supply line to the machine. Such overflow pipe shall be connected to the shell of the washer such that the top of overflow is below the bottom of the trunnion shaft. The overflow pipe shall be without shutoff valves and arranged to discharge to a suitable tank. (CFC 3603.9.2). *Show this equipment on the plans.* Plan page number: _____.

❑ 37. The supply pipe shall contain a shutoff valve, shall enter the washer above the discharge level and shall
discharge away from the door opening. (CFC 3603.9.2). *Show this equipment on the plans.* Plan page number: _____.

❑ 38. Individual button and lint traps shall be provided for each dry-cleaning unit. (CFC 3603.9.3). *Show the traps on the plans*. Plan page number: _____.

❑ 39. A permanent sign shall be displayed near the door opening of each dry-cleaning machine indicating it is not to be operated with solvents having a flash point less than the specified level. The sign shall also indicate that the doors to the machine shall not be opened until the rotating cylinder has stopped. (CFC 3603.9.4). *Indicate the wording and location of signage on the plans.* Plan page number: _____

Stills

❑ 40. Stills shall use steam, hot water or oil as a heat source. If steam is used, a pressure-regulating valve shall be installed in the steam line to the still, and a check valve shall be installed in the steam line between the boiler and the still. (CFC 3603.10). *Indicate the heat source on the plans and show the pressure-regulating valves, if applicable.* Plan page number: _____.

❑ 41. Stills shall operate on the vacuum principle. *Attach manufacturer's cut sheets on the still showing this.*

❑ 42. If a relief valve is installed on a still, it shall be equipped with a vent line extending to the exterior. (CFC 3603.10). *Show the vent line on the plans.* Plan page number: _____

❑ 43. Stills shall be provided with a combination vacuum and pressure gage. (CFC 3603.10). *Show this device on the plans.* Plan page number: ____

❑ 44. Stills shall be equipped with a constant level device to automatically maintain the solvent liquid in the still
at the proper height. (CFC 3603.10). *Show this device on the plans.* Plan page number: _____.

Drying Tumblers and Cabinets

❑ 45. Drying tumblers shall be well secured to foundations. (CFC 3603.11). *Show securement on plans*. Plan page number: _____.

❑ 46. Drying tumblers shall be provided with self-closing explosion hatches having an area of 0.011 square feet per cubic foot of cylinder volume. (CFC 3603.11). *Attach manufacturer's cut sheets on the hatches which verify that they meet these requirements. Include the sizing calculations in the plans*. Plan page number: _____.

❑ 47. Hatches on drying tumblers shall be arranged to open away from the operator. (CFC 3603.11). *Show this on the plans*. Plan page number: _____.

❑ 48. Drying tumblers in Class II systems shall be provided with approved extinguishing equipment arranged to operated automatically in case of a fire. (CFC 6303.11). *Show the extinguishing equipment on the plans.* Plan page number: _____.

❑ 49. Drying tumblers in Class II systems shall be provided with a steam jet of not less than 3/8 inch size for humidifying during the drying process. (CFC 3603.11). *Show the steam jet on the plans*. Plan page number: _____.

❑ 50. Drying tumblers shall be ventilated to the outside by means of pipes or ducts connected to an exhaust fan of sufficient capacity to remove dust, vapors or lint. (CFC 3603.11). *Show ventilation ducts and exhaust fan on the plans*. Plan page number: _____

❑ 51. Discharge pipes or ducts on drying tumblers shall be carried to a height of not less than 6' above the roof and provided with cleanout facilities. (CFC 3603.11). *Show the discharge pipes on the plans.* Plan page number: _____

❑ 52. Discharge pipes or ducts on drying tumblers shall not terminate within 10' from doors, windows or combustible walls. (CFC 3603.11). *Show the location of discharge pipes in relation to doors, windows and combustible walls*. Plan page number: _____.

θ 53. Fans on drying tumblers shall be properly housed and interlocked to ensure operation while the drying tumbler is in use. (CFC 3603.11). *Show the electrical schematic for the interlock on the plans.* Plan page number: _____.

Bonding and Grounding

❑ 54. Storage tanks, treatment tanks, filters, pumps, piping, ducts, dry-cleaning units, stills, tumblers, drying cabinets and other equipment, if not inherently electrically conductive, shall be bonded together and grounded. (CFC 3603.12.1). *Show the grounding/bonding on the plans.* Plan page number: _____

❑ 55. Pulleys and belts in dry-cleaning rooms shall be provided with properly grounded combs, collectors or neutralizers. (CFC 3603.12.2). *Show the grounding/bonding on the plans.* Plan page number: _____

❑ 56. When fabrics are transferred from one piece of equipment to another, the two pieces of equipment shall be electrically bonded together. (CFC 3603.12.3). *Show the grounding/bonding on the plans.* Plan page number: _____

❑ 57. Metal tops of spotting tables shall be permanently and effectively grounded. (CFC 3603.12.4). *Show the spotting tables and their grounding/bonding on the plans.* Plan page number: _____

Scouring, Brushing and Spotting

❑ 58. Scouring, brushing and spotting tables shall have a liquid-tight top with a curb on all sides not less than 1" high. The top of the table shall be pitched to ensure thorough draining to a1.5" drain connected to a suitable container especially provided and marked for such purpose. (CFC 3603.13.1). *Show the spotting tables and how they will meet these requirements on the plans.* Plan page number: _____

❑ 59. Solvents shall be dispensed from approved safety cans. (CFC 3603.13.2). *Attach manufacturer's cut sheets of the safety cans to be used.*

❑ 60. Class I, II and III liquids shall be stored in approved liquid storage cabinets. (CFC 3603.13.2). *Attach manufacturer's cut sheets of the storage cabinets to be used.*

❑ 61. Textiles which cannot be cleaned within dry-cleaning units shall be cleaned on scouring or brushing tables, or in scrubbing tubs containing no more than 3 gallons of flammable or combustible solvent. (CFC 3603.13.3). *Show these scouring tables or scrubbing tubs on the plans*. Plan page number: _____.

❑ 62. Scrubbing tubs used outside dry-cleaning units shall be secured to the floor and provided with permanent 1.5" trapped drains connecting to a suitable container especially provided and marked for such purpose. (CFC 3603.13.3). *Show how scrubbing tubs will meet this requirement on the plans.* Plan page number: _____.